

passed into the cecum at operation. Four days later the patient developed progressive silent abdominal distention characteristic of ileus. Withdrawal of the tip of the tube into the small intestine was productive of a large amount of gas and liquid small-bowel content, and was followed by complete subsidence of symptoms. Thus the tube provides an aseptic enterostomy which may be used at will. Suction is maintained until it seems highly probable that normal intestinal activity will be resumed. The tube is then clamped off, but left in until bowel activity has definitely returned to normal without the development of distention. We agree with Whipple, that the preoperative and postoperative use of the Miller-Abbott tube adds to the safety and comfort of patients undergoing operations upon the colon.

SUMMARY

It has been demonstrated that distention of the small intestine existed in 81.8 per cent of a small group of cases of obstruction of the colon from various causes. This would indicate that the ileocecal valve is incompetent in those cases of obstruction of the colon having an associated appreciable distention of the small intestine. Intubation decompression is indicated in the preoperative preparation of patients with obstruction of the colon, if the scout roentgenogram of the abdomen reveals distention of the small intestine, demonstrating that the valve is incompetent. Although the tube may enter the colon, satisfactory decompression may be accomplished by intubation down to the ileocecal valve. Following intestinal anastomosis and operation for perforated appendicitis, the use of the Miller-Abbott tube will materially reduce morbidity and mortality. The necessity for intubation decompression usually denotes a serious existing condition. Only a surgeon who is familiar with all phases of intestinal obstruction and with the various technics and dangers of intubation as well as with the alternatives when intubation is unsuccessful, should assume full responsibility.

727 West Seventh Street.

REFERENCES

1. Wangenstein, Owen H., and Rae, Charles E.: The Distention Factor in Simple Intestinal Obstruction. An Experimental Study with Exclusion of Swallowed Air by Cervical Esophagostomy, *Surg.*, 5:327-339, 1939.
2. Bennett, Louis C.: Intubation Management of Distention in Intestinal Obstruction, *West. J. Surg.*, 49:71-76, 1941.
3. Wangenstein, Owen H.: The Therapeutic Problem in Bowel Obstruction, *Pub.*, Charles C. Thomas, Springfield, Ill., 1937.
4. Koucky, John D., and Beck, William C.: Timing Operative Intervention for Acute Intestinal Obstruction, *Arch. Surg.*, 42:581-597, 1941.
5. Rankin, Fred W., and Graham, A. Stephen: Cancer of the Colon and Rectum, *Pub.*, Charles C. Thomas, Springfield, Ill., 1939.
6. Abbott, W. Osler, and Johnston, Charles G.: Intubation Studies of the Human Small Intestine; A Non-surgical Method of Treating, Localizing and Diagnosing the Nature of Obstructive Lesions, *Surg., Gynec. and Obst.*, 66:691-697, 1938.
7. Johnston, Charles G.: Decompression in the Treatment of Intestinal Obstruction, *Surg., Gynec. and Obst.*, 70:365-369, 1940.
8. Leigh, Octa C., Jr., Nelson, John A., and Swenson, Paul C.: The Miller-Abbott Tube as an Adjunct to Surgery of Small Intestinal Obstructions, *Ann. Surg.*, 111:186-212, 1940.
9. Bennett, Louis C.: Tube Decompression in Intestinal Obstruction, *Southwestern Med.*, 24:152-157, 1940.
10. Whipple, Allen O.: The Use of the Miller-Abbott Tube in the Surgery of the Large Bowel, *Surg.*, 8:289-293, 1940.

URETERAL SPLINT: SOME EXPERIENCES WITH ITS USE*

LLOYD KINDALL, M. D.
Oakland

THE ureteral splint is indicated in many operations for the surgical removal of upper urinary tract calculi, and in operations for the correction of hydronephrosis and pyonephrosis. It is used to promote free drainage from kidney to the bladder, after all obstructions have been corrected. The ureteral splint must be of proper size and correctly inserted.

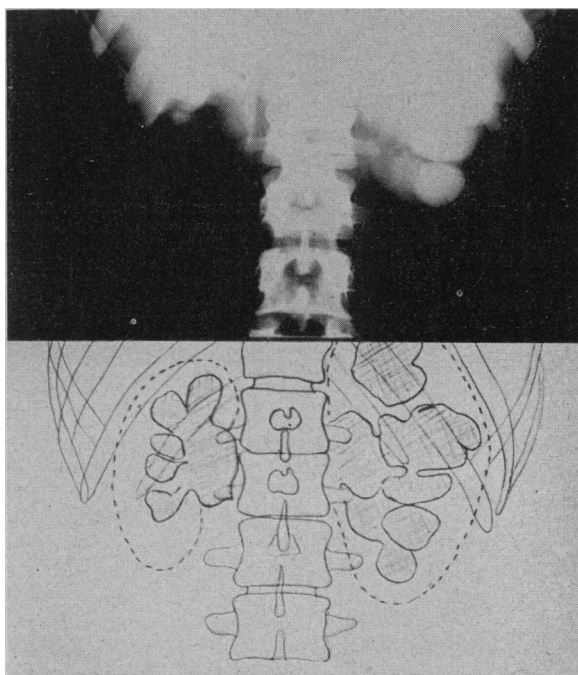


Fig. 3.—Bilateral pyonephrosis in a 19 years old girl.

I will now present some brief case histories with pictures illustrating some experiences with the splint.

REPORT OF CASES

CASE 1.—Mr. J. A., age 30, was seen October 3, 1940, complaining of intermittent attacks of sharp, stabbing pain in the left flank, radiating to the left groin. At cystoscopy, a calculus

* Read before the Section on Urology at the Seventieth Annual Session of the California Medical Association, Del Monte, May 5-8, 1941.

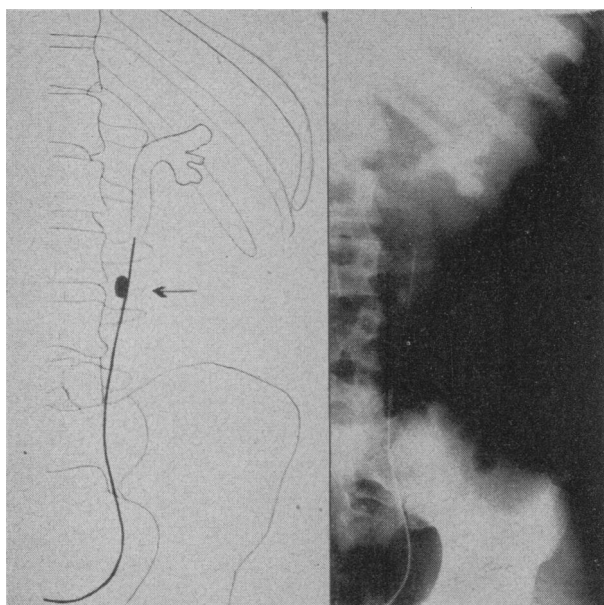


Fig. 1.—Catheter was inserted up ureter, beyond calculus and as far as it would go. Note incomplete filling of upper calyces.

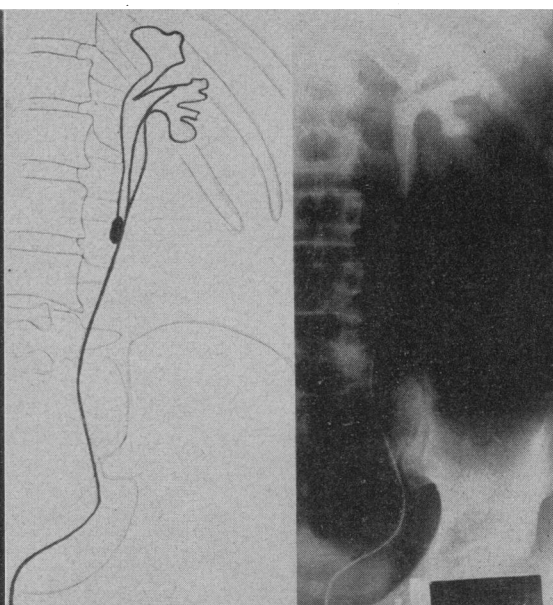


Fig. 2.—Intravenous urography taken 24 hours after Fig. 1. The ureteral catheter has migrated up the ureter, and into the pelvis.

was found in the upper third of the left ureter, and the ureteral catheter was inserted in the ureter as far above the calculus as it would go. (See Fig. 1.) Because of incomplete filling of the calyces in the upper third of the kidney, the patient was given skiodan intravenously the following day, and you will see in (Fig. 2.) that the ureteral catheter has migrated up the ureter and well into the kidney pelvis. Catheters left in the ureter for drainage have a tendency to be expelled downward through the ureter; but in this case the catheter has migrated upward into the kidney pelvis. This upward migration of the catheter is not explained.

CASE 2.—Mrs. R. Y., age 19, was first seen in September, 1939, complaining of an acute cystitis. At cystoscopy a bilateral pyonephrosis was found. (See Fig. 3.) A plastic operation was performed on the pelvo-ureteral junction of the right kidney,

and a No. 24 Pezzar catheter, with a No. 8 ureteral extension, was inserted for kidney pelvis drainage as well as for a uretral splint. One week later skiodan was injected intravenously (See Fig. 4) which shows that the ureteral extension has come out of the ureter and is coiled up in the pelvis. I have had this experience in two other cases, when using this type of drainage catheter with the ureteral extension.

1 1 1

CASE 3.—Mrs. H. S., age 46, was seen in October, 1940, after she had had three acute attacks of left renal colic. An intravenous urography showed a calculus in the upper part of the midportion of the left ureter. (See Fig. 5.) At surgery, the calculus was removed from the ureter, following which a straight nephrostomy tube was inserted through the parenchyma of the of the kidney into the pelvis, and a large No. 11 Whistle-

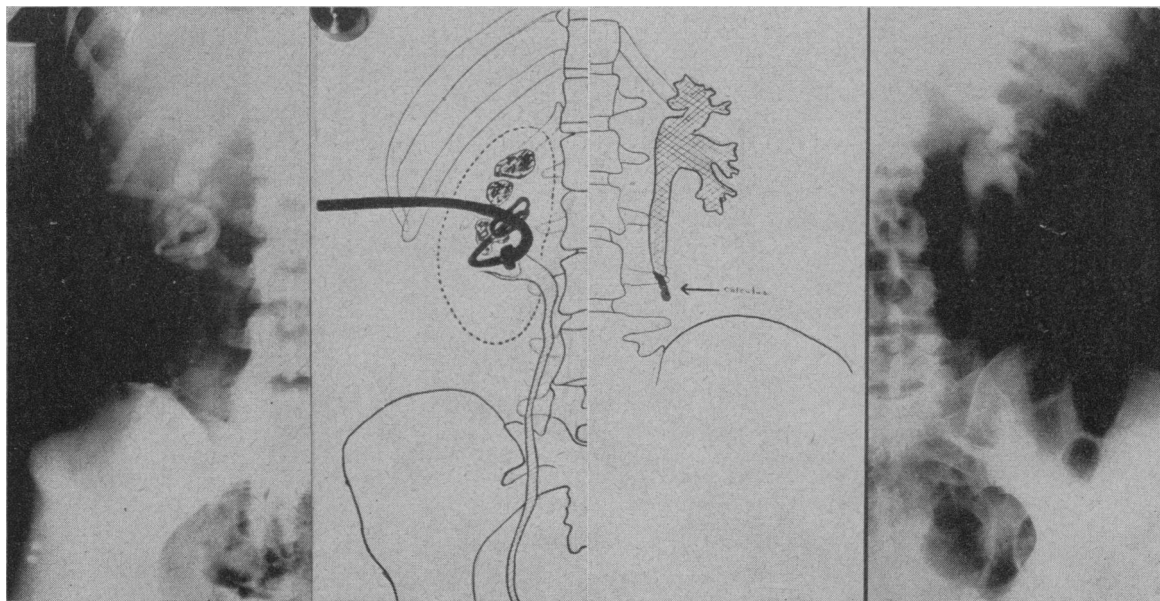


Fig. 4.—A plastic operation was done on the right pelvo-ureteral junction at which time a No. 24 Pezzar catheter, with a No. 8 ureteral extension, was inserted into the kidney and ureter respectively. This picture was taken one week after surgery, and shows the ureteral extension, which was originally placed down the ureter, now coiled up in the pelvis.

Fig. 5.—Large calculus in upper part of the mid-portion of the left ureter.

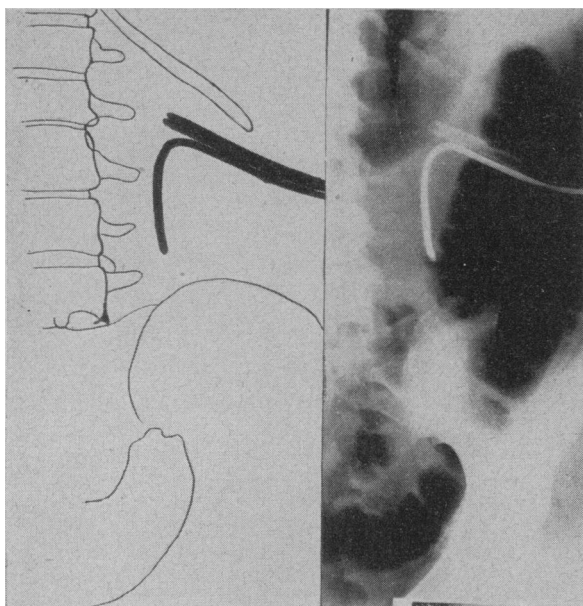


Fig. 6.—This case is same as Fig. 5, showing nephrostomy tube and large No. 11 ureteral catheter, which has been inserted through the nephrostomy opening and down the ureter a short distance.



Fig. 7.—This case shows a stricture in the upper third of the ureter, which is the end result of the ureteral splint used in Fig. 6.

tipped catheter was inserted through the nephrostomy opening and down the ureter for a short distance. (See Fig. 6.) In two weeks the nephrostomy tube and ureteral catheter were removed, and one week later skiodan was given intravenously. (See Fig. 7.) This picture shows a stricture in the upper third of the ureter, which was caused by pressure from the end of the large catheter in the ureteral lumen. This stricture required several dilations before the nephrostomy sinus would heal.

CASE 4.—J. G. age 34, entered the hospital in January, 1941, complaining of severe pain in the left flank associated with chills and fever. At cystoscopy a large calculus was found in the upper end of the left ureter, and the ureteral catheter was left in situ for drainage. (See Fig. 8.) At surgery the calculus was removed from the ureter. A nephrostomy tube was inserted and a No. 7 x-ray ureteral catheter was passed through the nephrostomy opening, down the ureter and into the bladder. (See Fig. 9.) After ten days the ureteral catheter was removed, and a pyeloureterogram was made by injecting sodium iodine solution

through the nephrostomy tube. (See Fig. 10.) It shows normal kidney pelvis, calyces, and ureter. Two weeks later the patient was given skiodan intravenously, which shows a normal functioning kidney and ureter. (See Fig. 11.)

COMMENT

The experiences above quoted have illustrated the importance of the proper application of the ureteral splint. Complications of the faulty use of the splint will not be determined, unless follow-up pyelograms are made. It is important that all perirenal and periureteral adhesions be removed before the splint is applied. All congenital anomalies such as: anomalous vessels, faulty inser-

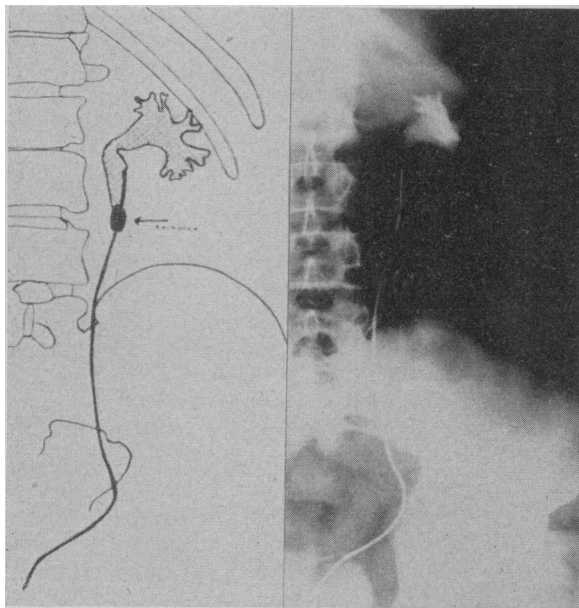


Fig. 8.—Pyelogram, showing large calculus in upper third of left ureter.

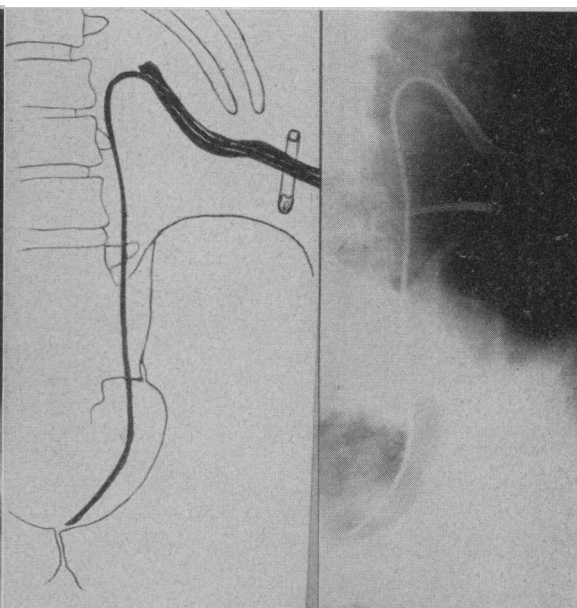


Fig. 9.—This illustrates the nephrostomy tube and an x-ray ureteral catheter used as a splint, and extending well down the ureter. This case is the same as in Fig. 8.

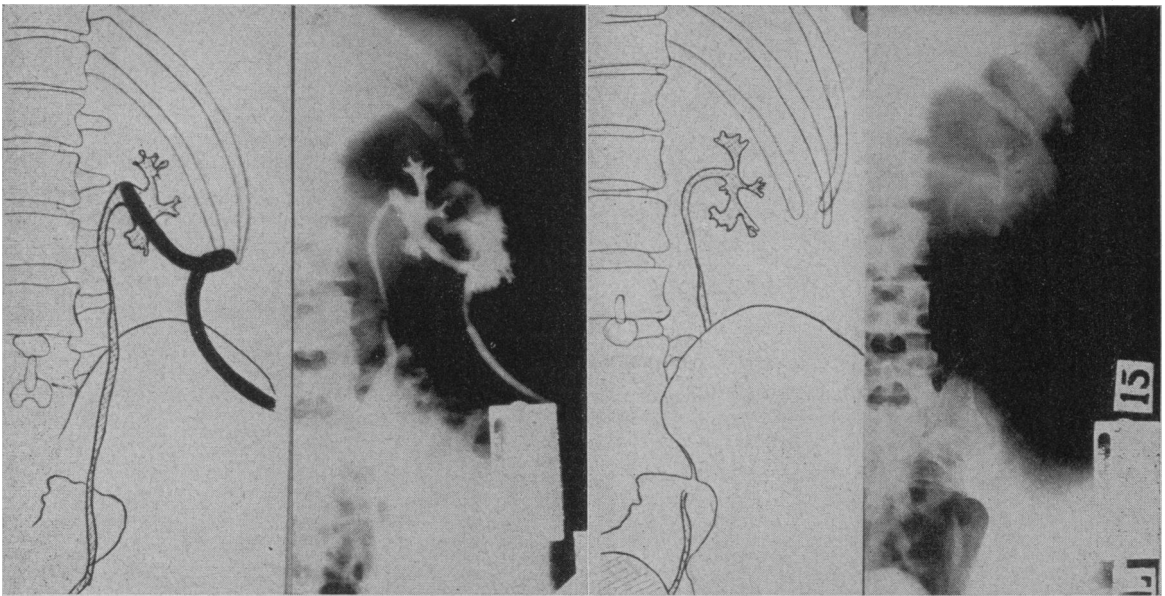


Fig. 10.—This is the same as Figures 8 and 9 showing the pyeloureterogram made by injecting sodium iodine solution through the nephrostomy tube.

Fig. 11.—This is an intravenous urography of Fig. 8, showing normal functioning kidney and ureter.

tion of the ureter to the pelvis, stenosis of the pelvo-ureteral junction, and strictures of the ureter, must be corrected. In other words, anything that interferes with the free drainage of urine from kidney to the bladder must be corrected before the splint is applied.

It is my opinion that the ureteral splint should be an x-ray ureteral catheter, the diameter of which should not be larger than the caliber of the ureter; that, when possible, it should be inserted through the nephrostomy opening and anchored at its upper end, and that it should extend well down the ureter.

For additional comment, I refer you to Thomas Gibson's original article "The Ureteral Splint,"

which he presented before the Western Section Meeting of the American Urological Association in April, 1939.

CONCLUSIONS

1. Cases are presented showing faulty application of the ureteral splint.
2. An x-ray ureteral catheter is used, and should not be larger in diameter than the lumen of the ureter.
3. The ureteral catheter should extend well down the ureter.
4. The ureteral splint can be successful only when all obstructions to the outflow of urine from the kidney to the bladder have been corrected.

400 Twenty-ninth Street

MACROCYTIC ANEMIA IN LIVER DISEASE*

EDGAR WAYBURN, M. D.
San Francisco

DURING the past several years the work of a number of investigators has made it obvious that the so-called pernicious anemia blood picture is not a pathognomonic sign of one disease, but a type of faulty blood formation. Whatever disease process is able to produce, the disturbance in hematopoiesis will produce the blood picture. Among the diseases in which this condition has been described are pernicious anemia itself, sprue, tropical macrocytic anemia, macrocytic anemia of

pregnant women, nutritional deficiency, various lesions of the G-I tract, certain cases of hemolytic jaundice, and certain diseases of the liver. These conditions all result in the same type of underlying process; defective blood formation, in which there is a failure of maturation of the cells of the red corpuscle series. In pernicious anemia this is often carried out to an extreme extent. In liver disease it is usually much more mild. However, with the same degree of anemia it is extremely difficult, if not impossible, to distinguish between the two blood pictures.

There is general agreement among investigators^{1,2,3,4,5} on several aspects of the anemia of liver disease. The macrocytosis affects the great majority of the red corpuscles, which show relatively little variation in size or shape. This appearance is strikingly like that of mild pernicious anemia. Nucleated red cells are uncommon. The

* Read before the Section on General Medicine at the seventieth Annual session of the California Medical Association, Del Monte, May 5-8, 1941.

From the Department of Medicine, Stanford University Medical School.